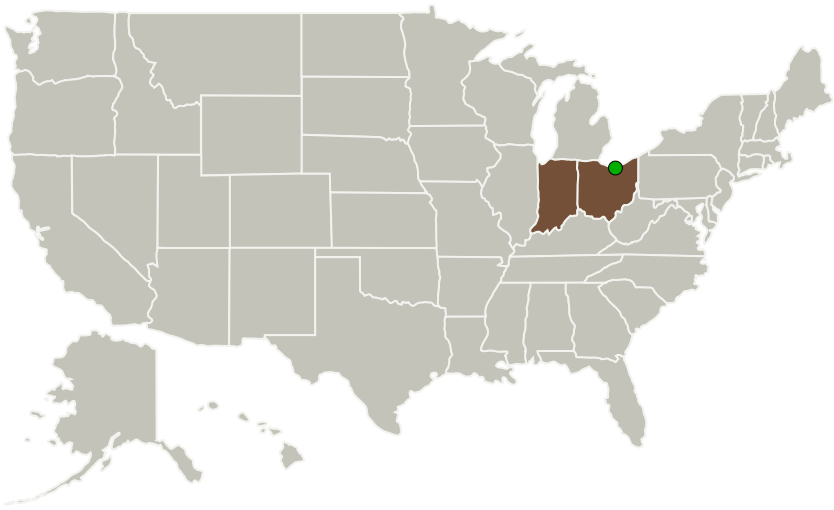
Observation Platform for Dynamic Biomedical and Biotechnology Experiments using the ISS Light Microscopy Module, Phase I

Completed Technology Project (2010 - 2010)

Project Introduction

The proposed "Observation platform for dynamic biomedical and biotechnology experiments using the ISS Light Microscopy Module" consists of a platen sized to fit the stage of NASA's Light Microscopy Module (LMM) on the International Space Station (ISS). At the heart of the innovation is a small hollow microscope slide into which specimens and reagent solutions can be injected by a combination of small reservoirs, pumps and valves under computer control. All components are designed into the single platen. Techshot's enabling technology for this product will greatly accelerate the research and development cycle. In Phase I research Techshot will (1) canvass potential users and produce a requirements document that covers user needs, function in low gravity and safety aboard the ISS, (2) design and build a prototype for feasibility testing in Techshot's laboratory, and (3) demonstrate operation using living cells. In Phase II research Techshot will produce a version of the Platform worthy of validating for flight readiness. The compact Platform will be able to be moved to and from ISS on any orbital transfer vehicle. The Platform is expected to be made available to a variety of users of the LMM and should serve to create new users and novel uses of the LMM.

Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
Techshot, Inc.	Lead Organization	Industry	Greenville, Indiana
Glenn Research Center(GRC)	Supporting Organization	NASA Center	Cleveland, Ohio

Primary U.S. Work Locations	
Indiana	Ohio

Project Transitions

January 2010: Project Start

July 2010: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/139974)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Techshot, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

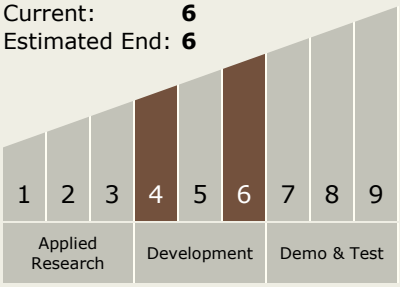
Carlos Torrez

Principal Investigator:

Paul Todd

Technology Maturity (TRL)

Start: **4**
Current: **6**
Estimated End: **6**



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Technology Areas

Primary:

- TX07 Exploration Destination Systems
  - TX07.2 Mission Infrastructure, Sustainability, and Supportability
    - TX07.2.1 Logistics Management

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System